

Some trends in vehicle safety

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Visit to NHTSA

Washington DC March 2007

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Presentation prepared in cooperation with Anders Lie, SRA

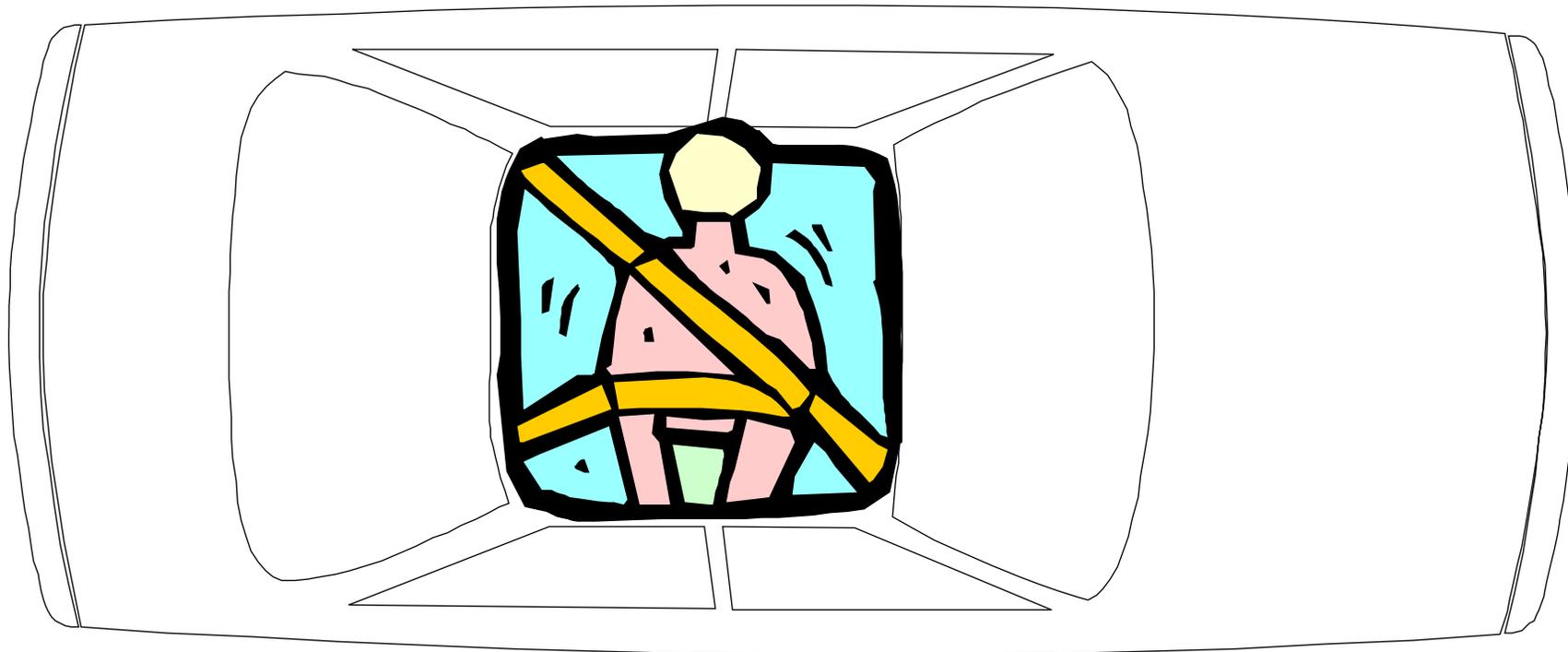
‘The Biomechanics of the Human’



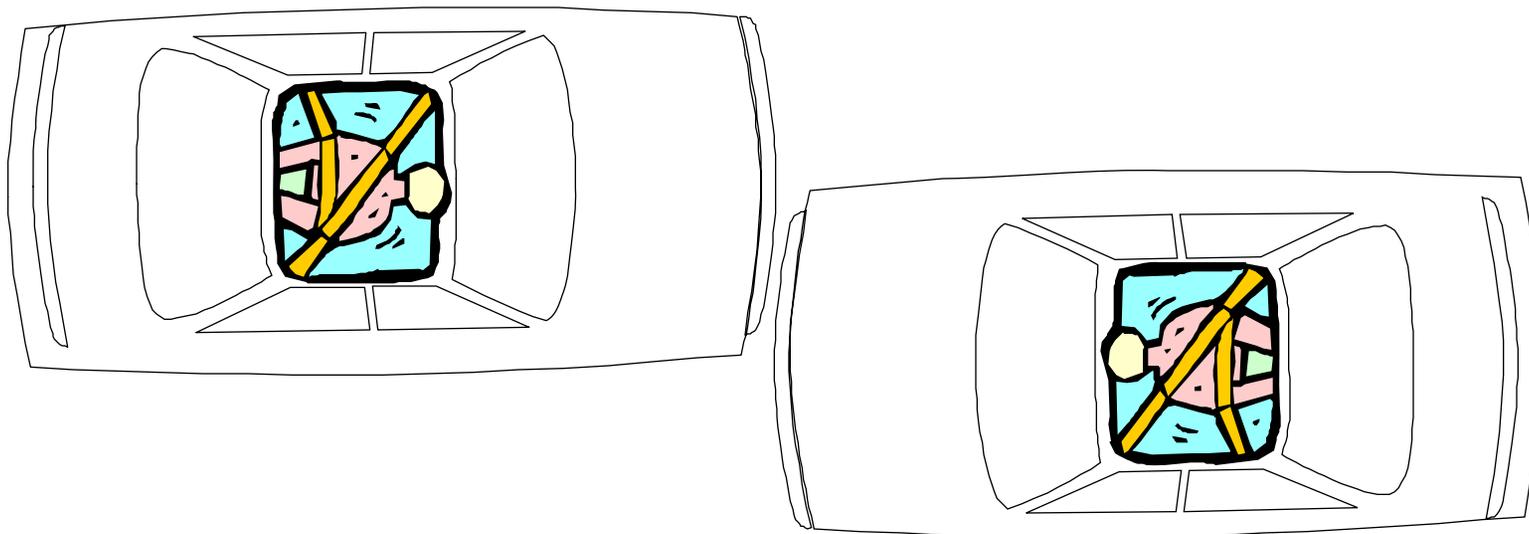
'The Restrained Occupant'



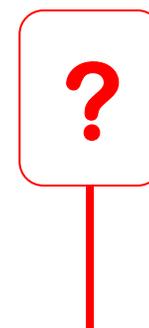
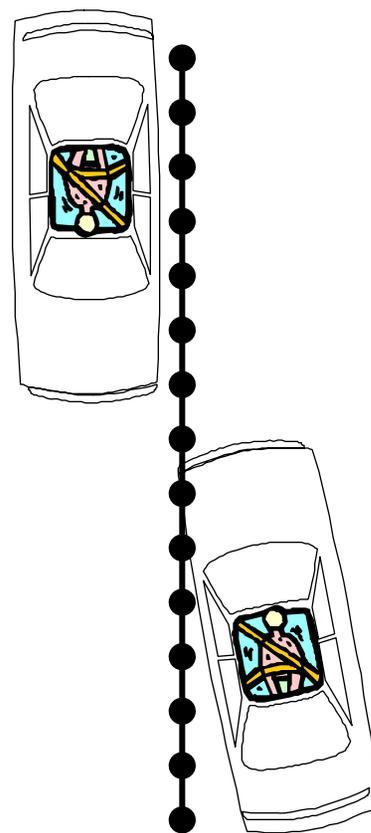
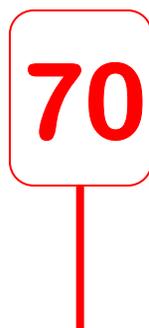
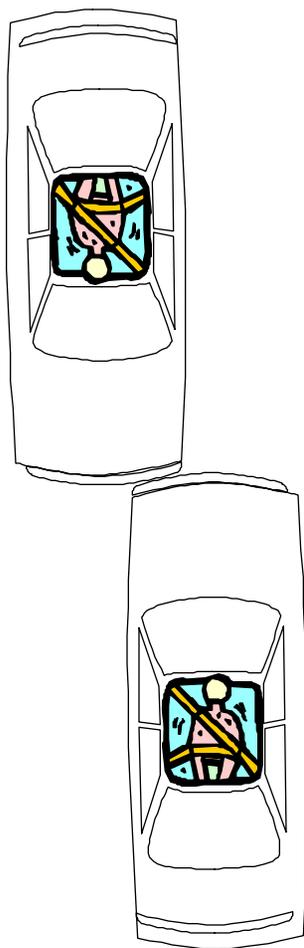
'The Crashworthy Vehicle'



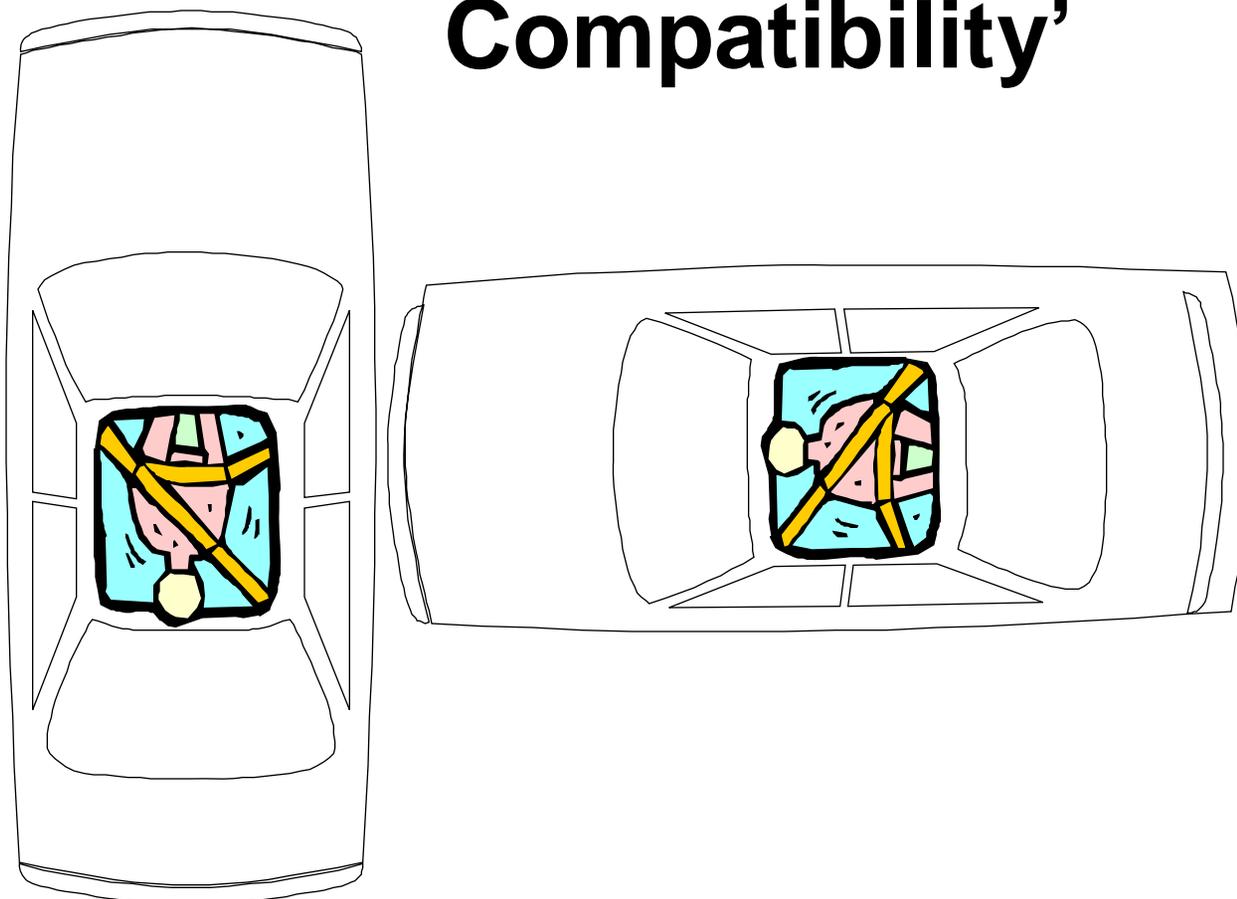
Compatibility



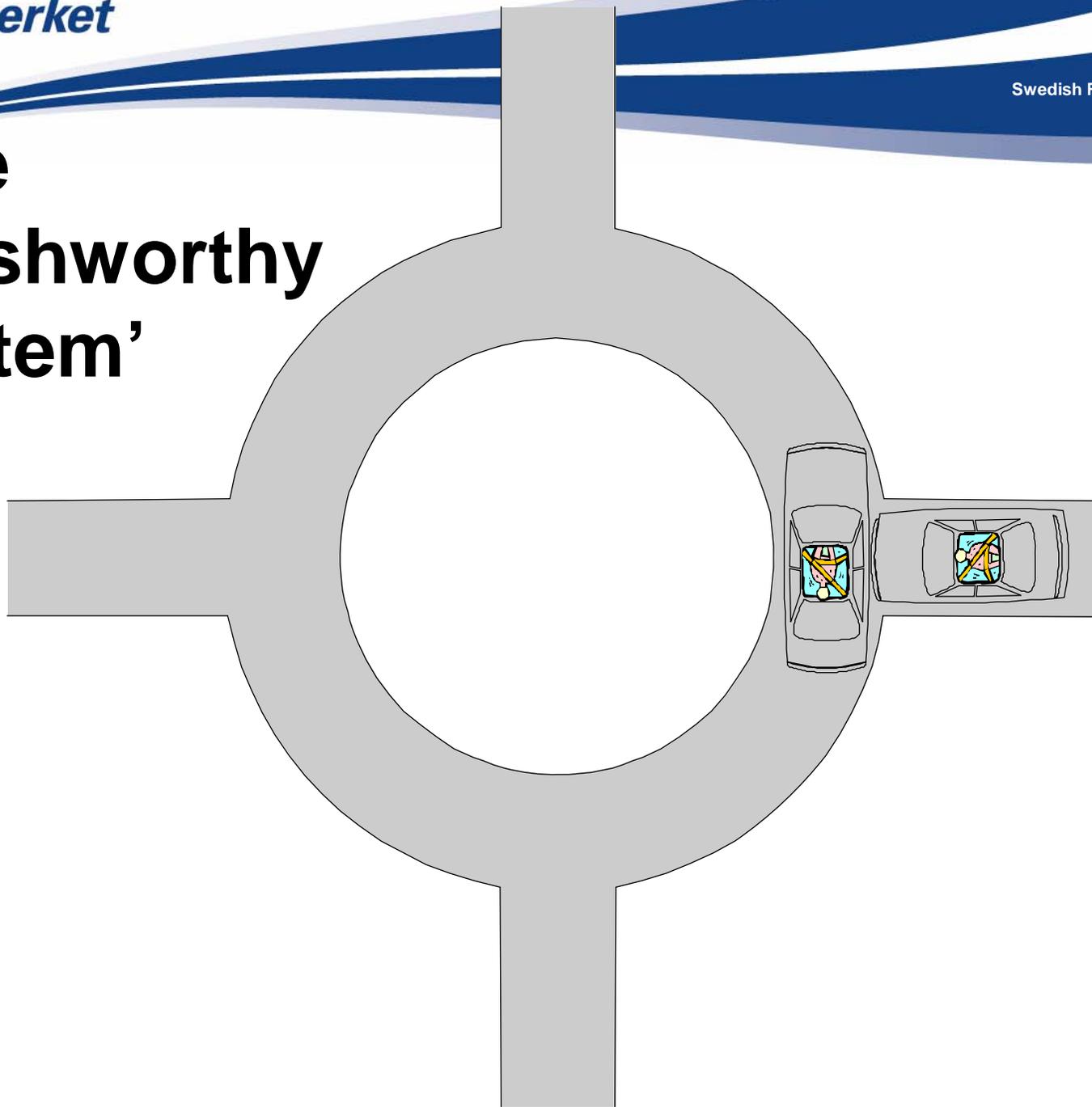
The Crashworthy System



'Vehicle-to-vehicle Compatibility'



'The Crashworthy System'











30 years of development

- Ten times more likely to be killed in a 30 y old car in a crash with a new car
- Vehicle safety is a major contributor to safety overall and political targets for safety
- Development of vehicle safety is faster than ever – net effect approximately 40-50%

”Safety does not sell” is no longer true

- ESC increase from 15 to 91% in 40 months
- SBR increase from 0 to 80% in 40 months
- 50+% of new car sales are Euro NCAP 5 stars

”Industry does not deliver until they are forced by regulation” is no longer true, at least not generally

- Most new systems are not regulated
- Most manufacturers have internal targets beyond regulated level
- Automotive industry has research and development capacity beyond society
- Some aspects, like pedestrian protection, not so fast

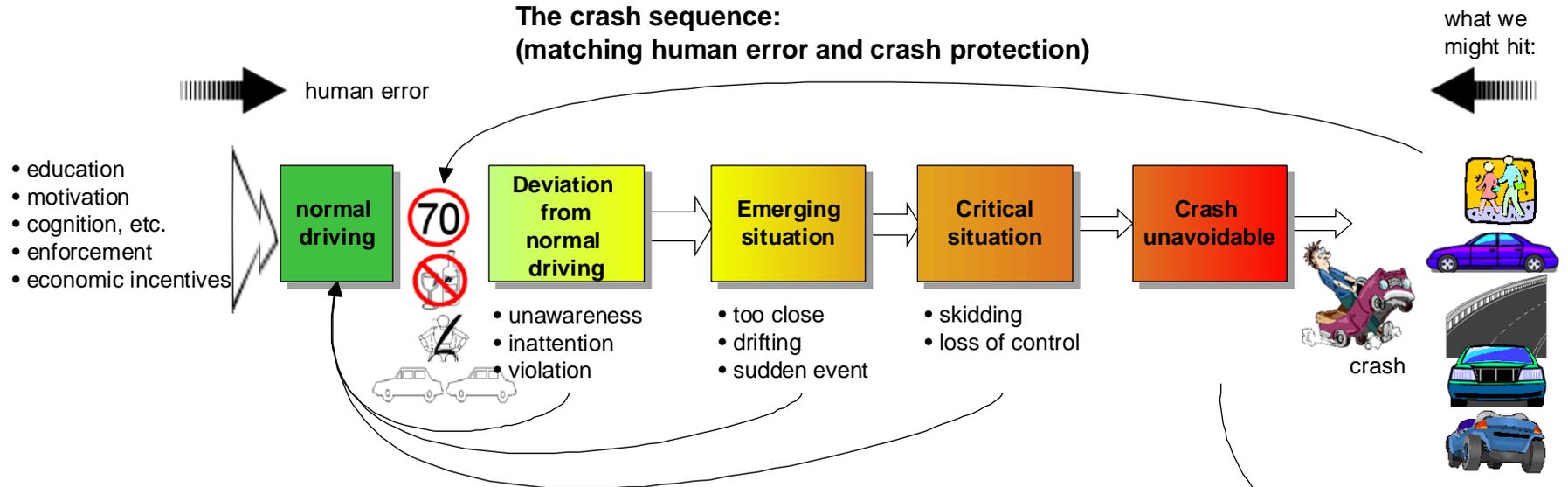
Competition and customer satisfaction are drivers for development – regulation is there for;

- Maintaining and increasing minimum level
- Cover areas with limited market forces
- Standardize and define aspects of safety

Which tools can the society use to enhance competition and demand?

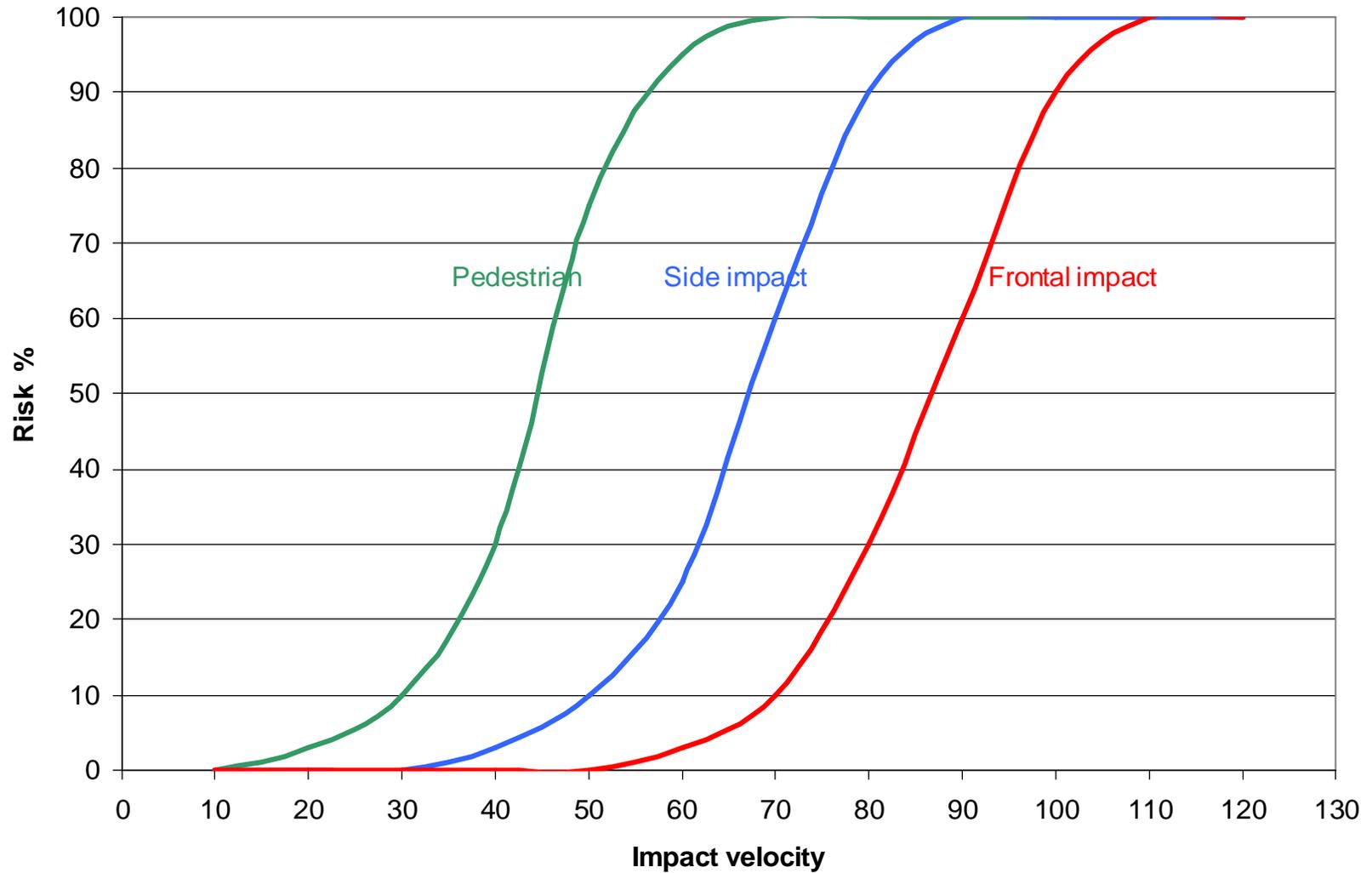
- First of all, understand who is the customer of new cars (more CEO's than private)
- NCAP
- Act as customer and stimulate other fleet buyers, contractors, taxi and rental car companies
- Follow up new innovations and progress
- OHS regulations used for vehicle use
- Stimulate and fund research

The crash sequence: (matching human error and crash protection)



	• access to road transport system	• comfort • economy • social conformity	• warning system • supporting system	• intervention in driving	• immediate correction	• preparation for crash	crash protection
Vehicle	promote normal driving	(ISA, SBR, alcohol interlock)	(AICC, LDW)	(ESC, LDA, AICC2)	(pre-safe, emergency braking)	(seat belts, airbag, whiplash protection, pedestrian protection)	barrier design, roundabouts
Infrastructure	promote normal driving	(speed warning, tactile warning, humps)	tactile edge lines	high friction surface			
Others	promote normal driving	• enforcement • insurance • contracts				• emergency service	

Risk of fatal injury related to impact velocity



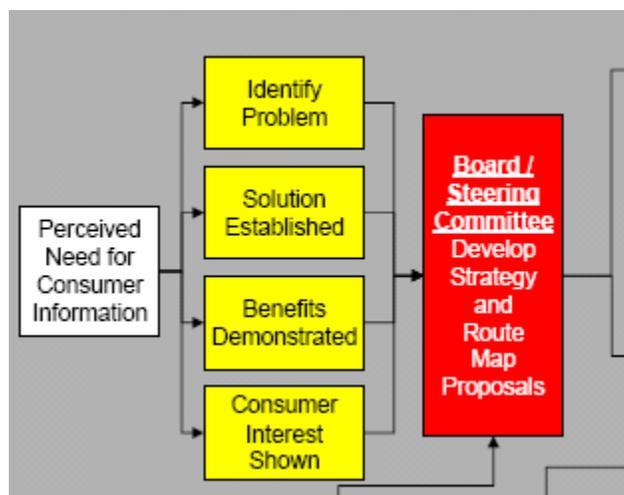
Selected systems with high potential

- Speed limit recognition and driver support
- Systems to detect driver under influence
- ESC (already implemented)
- Emergency braking

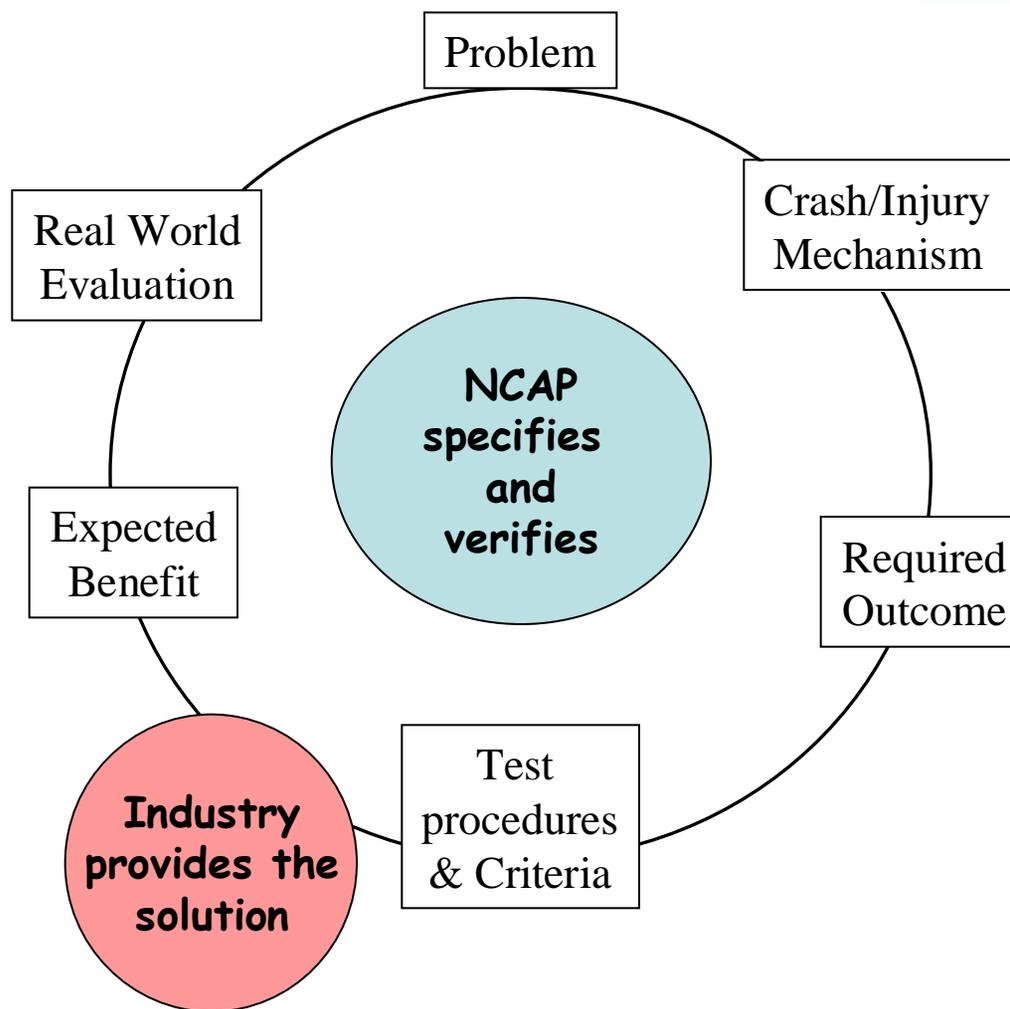
Euro NCAP route map

- ESC in three steps; recommendation, car by car specification, test of functionality
- Speed warning
- Strict requirements for further inclusion on the route map

Euro NCAP process – Route map



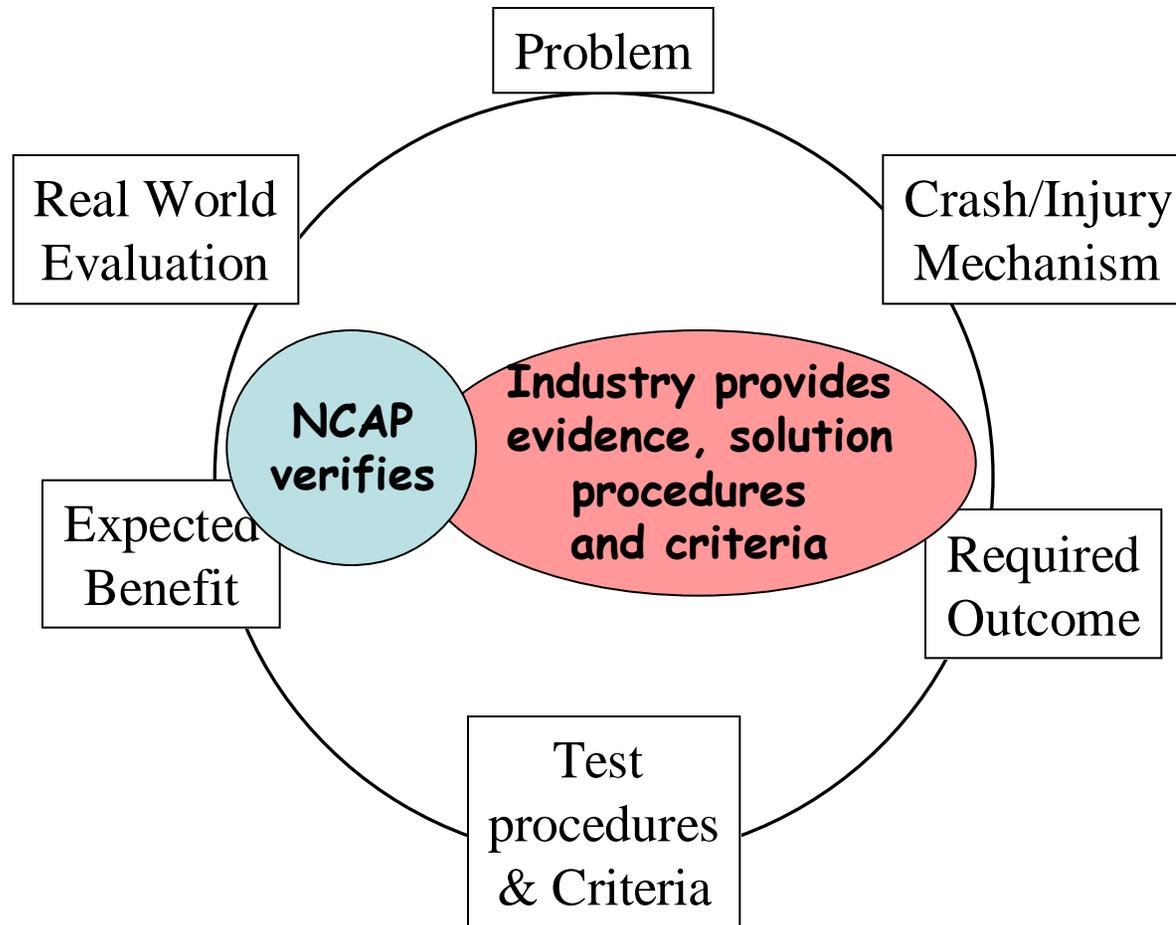
Today's NCAP



The NCAP process is effective, but is it too slow today?

- Does NCAP potentially slow down development and focus only on aspects giving credit?
- Are innovations so complex and integrated that they cannot be treated as stand-alone systems?

Beyond NCAP



Summary

- Competition and customer satisfaction are the strong motivators for safety – apart from regulation
- Society must develop more effective ways to drive development, and be clear about what is effective
- NCAP has been effective but must be developed further to stimulate innovation
- Industry should be stimulated to demonstrate by scientific methods the impact of innovations
- Speed, alcohol, ESC and emergency braking are most promising today

1 Energy efficiency

Climate change and increased fuel prices will be changing the road transport system

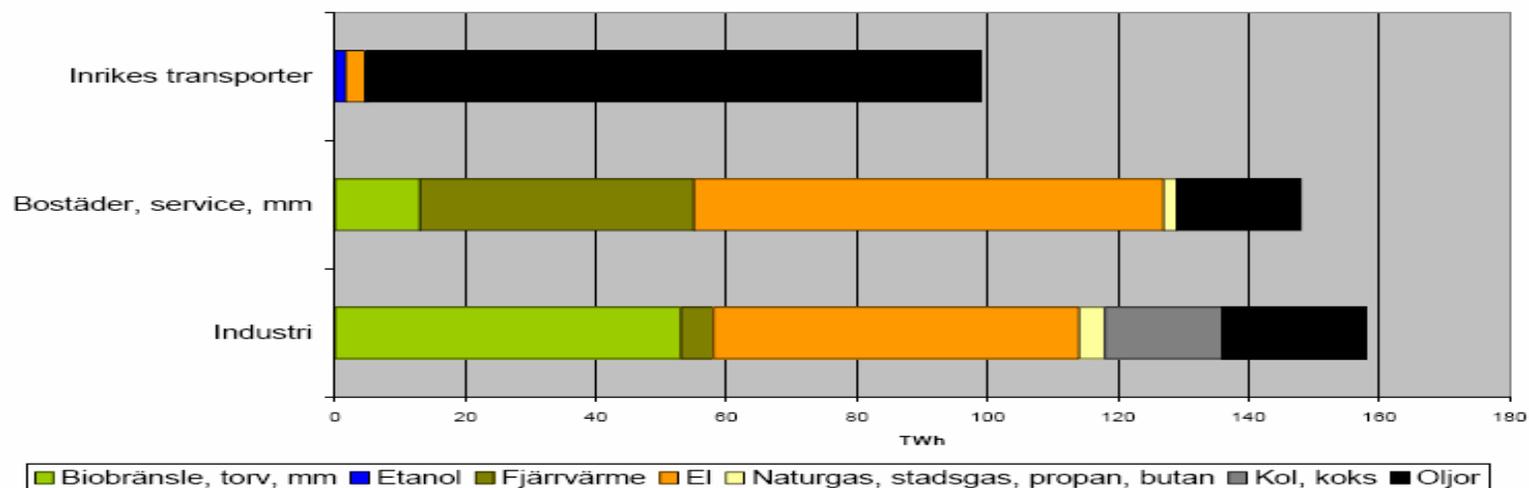
Even if oil is replaced with renewable sources, efficiency must increase three times (1/3 of today)

Efficiency will impact on road design, traffic management, speed, vehicles etc

Energy efficiency will be a new KPI of RTS

Use of energy sources

Slutlig energianvändning fördelad på sektorer i Sverige
2004



Källa: Energimyndigheten

A few examples

- New speed camera system is the largest contributor of CO₂ reductions from SRA in 2006
- Reduced tolerances and doubled fines saved 2-300 000 tons of CO₂ (10-15 % of climate target for RTS)
- Cars purchased under new SRA policy runs at 4.5 L/100 km **and** top safety level

2 Investments in new technology

- Supplier to Automotive industry more than 800 billion AUD/year
- Car manufacturers another 350 billion/year
- R/D 50 billion AUD/year for suppliers – 15-20 billion AUD/year for safety
- **Suppliers wants return of investment!**

Saab Alcokey

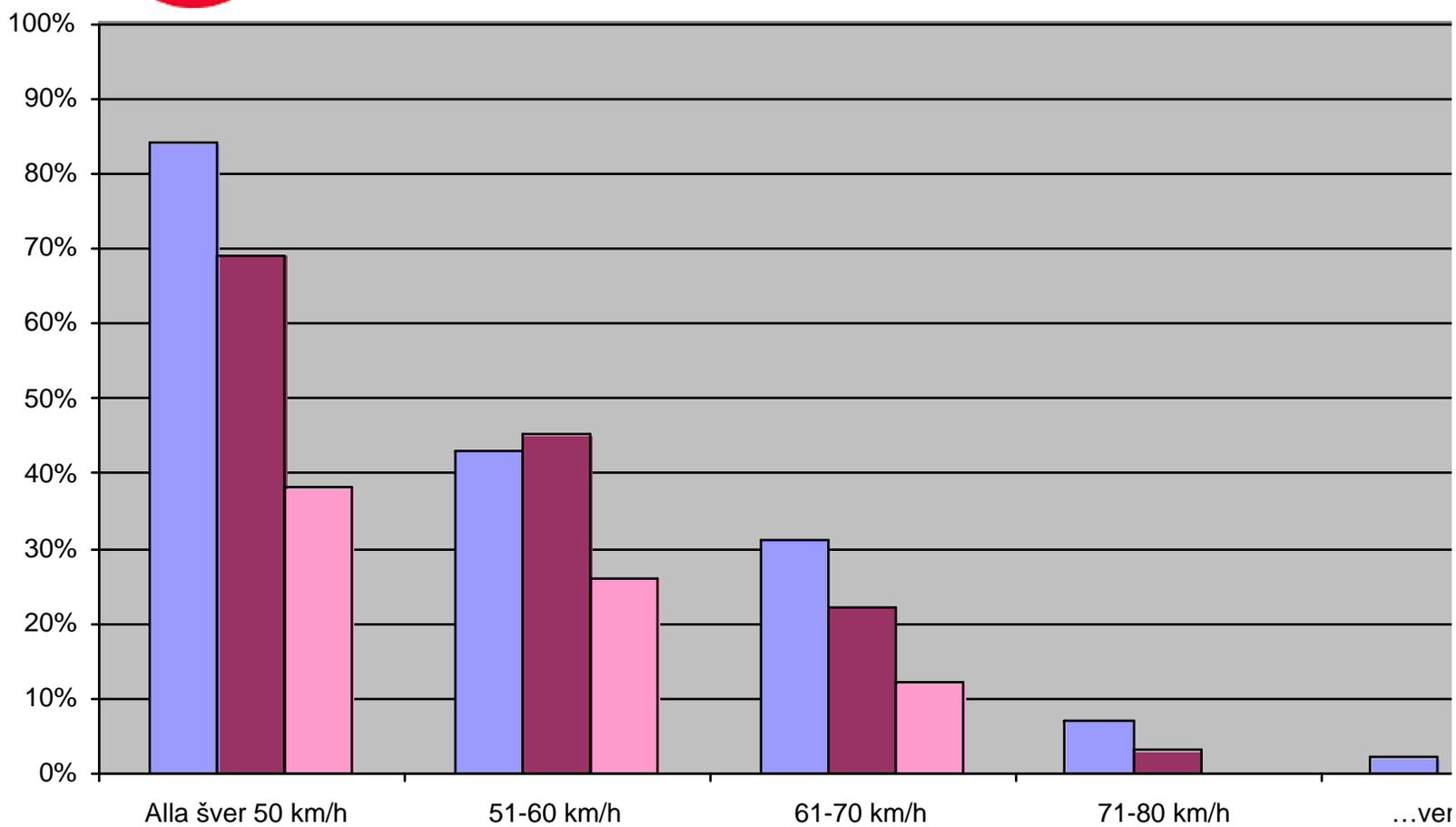


3 The fleets and the transport business will develop

- CSR – How and what you drive is a part of your brand image
- OHS and chain of responsibility will be more important
- Technology to decrease energy consumption and for safety will be demanded



DHL 50 km/h 2003-2005



SRA policy for vehicle purchase

- Five stars in Euro NCAP adult protection, two in pedestrian
- SBR, Whiplash protection and ESC
- Alcohol interlock, ISA and prepared for children as well as environmental requirements

4 Internationalisation and benchmarking

- Targets and KPI will be set on an international basis, countries in competition
- ETSC PIN system likely to be EU benchmark – research driven
- All products and services will be openly ranked, NCAP RAP QIII
- Safety will be a part of quality systems

5 Individual payment

- More toll roads and congestion charges
- Insurance will be covering more of society costs and more individual

Swedish Insurance

- Current average risk premium for third party liability 200 AUD/year
- Increase with today's costs to 600 AUD/year with larger variations (MC 10 000 AUD/year)
- Probably insurance linked to traffic offences and technology